McLaren Hart™

September 23, 1993

Mr. T. M. Walker, P.E.
Environmental Engineer
Mobil Exploration and Producing U.S. Inc.
10735 South Shoemaker Avenue
Santa Fe Springs, CA 90670

PERCHLORETHYLENE (PCE) AND HEAVY METALS IN SOIL AT THE JALK LEASE

Dear Mr. Walker,

McLaren/Hart has completed our review of the site characterization report prepared by Levine/Fricke ("Draft Subsurface Soil Investigation, Jalk Fee Property, 10607 Norwalk Boulevard, Santa Fe Springs, California"). The report included data showing that the soil contains crude oil, which would be expected in an active oil field. The report also documented that the soil contains lead, which presumably leached from metal pipes in an area known as the "boneyard", and perchloroethylene (PCE), which we believe is a result of operations at the neighboring facility.

This letter briefly explains the significance of the findings which were presented in the Levine and Fricke report and makes recommendations on how Mobil should proceed.

HEAVY METALS

Total lead, mercury, and zinc were detected in the boneyard in the southwest corner of the property at maximum concentrations of 1,750, 34.1, and 10,000 milligrams per kilogram (mg/kg), respectively. These concentrations exceed the Total Threshold Limit Concentration (TTLC) of 1,000, 20, and 5,000 mg/kg. Soluble lead and zinc were also detected at maximum concentrations of 151 and 474 milligrams per liter (mg/l). These concentrations exceed the Soluble Threshold Limit Concentration (STLC) of 5 and 250, respectively. Samples exceeding the TTLC and STLC were found at both the three foot and the eight foot depths. No samples were collected below eight feet.

Although the lead samples were collected from random sample locations, it appears that the lead is confined to the northeast corner of the boneyard, representing approximately one third of the

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total surface area of the boneyard, approximately 6,100 square feet. Excavation of this area to a depth of eight feet would result in approximately 1,800 cubic yards of soil.

Since the data show that metal concentrations were increasing between 3 and 8 feet, it is reasonable to assume that the soil below 8 feet may contain metals exceeding the cleanup criteria. We recommend additional sampling below eight feet prior to excavation to define the vertical extent of heavy metals.

PERCHLOROETHYLENE (PCE)

Perchloroethylene and related compounds [trichloroethylene (TCE) and 1,2-dichloroethylene (DCE)] were detected in the soil at the Jalk Fee. These chlorinated compounds are used in such industries as dry cleaning, electronics, aerospace, and metal treating, but are not used in oil production. The maximum concentration of PCE in soil at the Jalk Fee is 2,500,000 parts per billion (ppb). The following sections describe the possible source of PCE at this location.

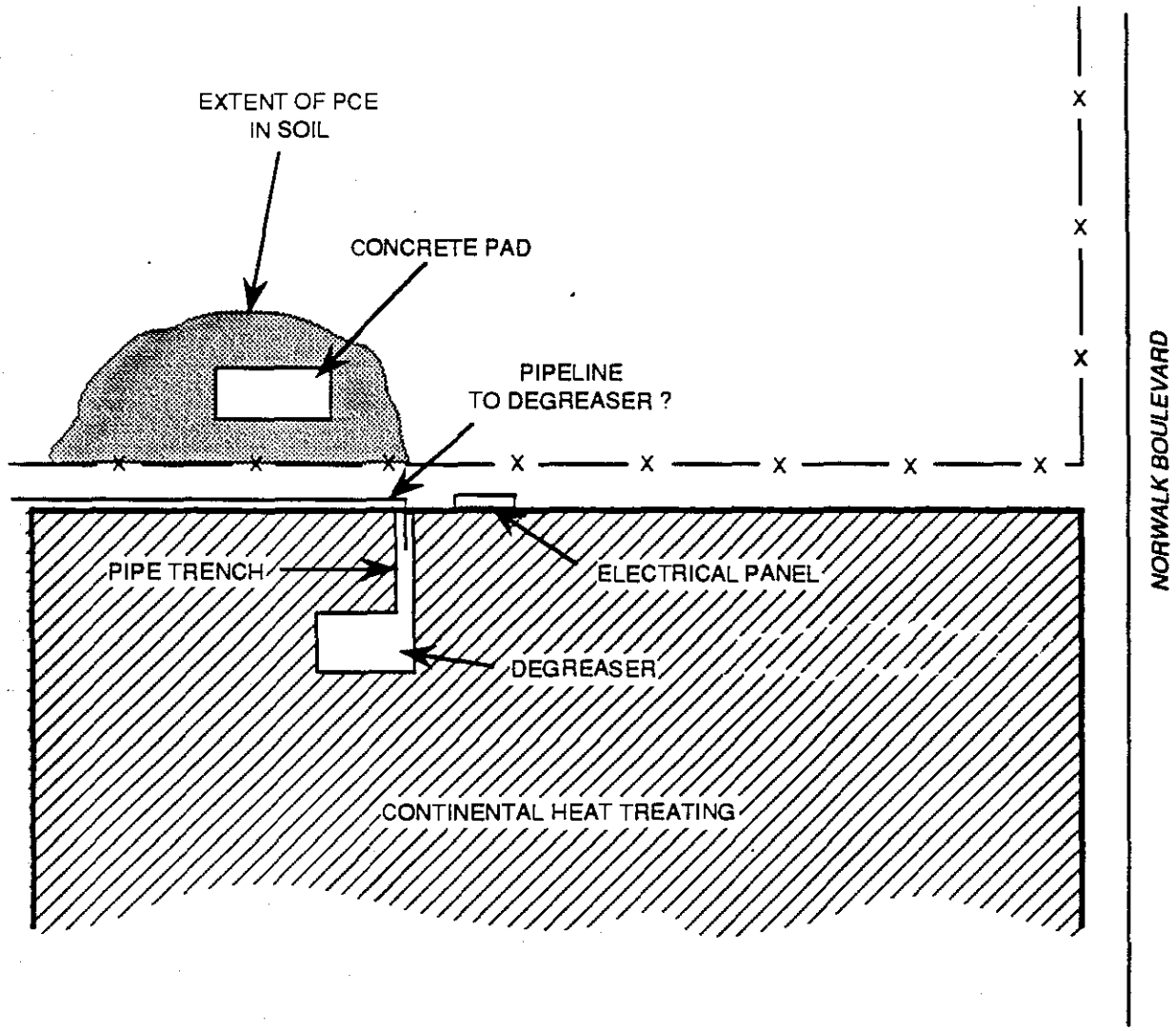
Santa Fe Springs Fire Department Record Review

In an attempt to identify possible sources of the PCE at the Jalk lease, McLaren/Hart reviewed the files at the Environmental Compliance Section of the City of Santa Fe Springs Fire Department. A written request to review the file on Continental Heat Treating was submitted by FAX on Tuesday, May 11, 1993 and the file was reviewed on Wednesday, May 12th. The following is a summary of the information in the file relevant to the PCE on the Jalk lease.

Use of PCE at Continental Heat Treating

The Continental Heat Treating facility was designed in 1968 and began operation in 1969. The facility drawings (Job # 6802, PE-1) dated August 20, 1968 showed a degreaser located approximately 120 feet west of the northeast corner of the building and 30 feet south of the northern wall of the building. A pipe trench was shown going from the degreaser to the north end of the building, just west of the electrical panel. The PCE on the Jalk lease was found in the area beginning exactly where the pipe trench left the building and continuing west to the northwest corner of the building. (See Figure 1)

In a letter to the City of Santa Fe Springs dated March 30, 1987, Continental Heat Treating reported that PCE was "used for cleaning of parts prior to heat treating." The hazardous material registration forms (February 15, 1993) reported an average PCE use of 125 gallons per day and a maximum daily use of 250 gallons per day. The Business Plan described a 500 gallon above ground PCE tank, although the location of this tank could not be determined from the information in the file.



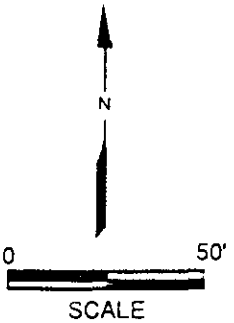


FIGURE 1
DISTRIBUTION OF
PERCHLOROETHYLENE (PCE) ON
JALK LEASE NEAR CONTINENTAL
HEAT TREATING DEGREASER

DRAWN BY: SD	DATE: 5-20-93	McLaren Hart ENVIRONMENTAL ENGINEERING CORPORATION	
ORDERED BY: DXD	DATE:		
APPROVED BY: [illegible]	DATE: 5-20-93		DRAWING NO. S9305114
APPROVED BY:	DATE:		

Documented Annual PCE Waste Generation

The hazardous materials registration forms (February 15, 1993) reported that 1.5 tons of PCE are generated each year at the facility. In the March 30, 1987 letter to the City of Santa Fe Springs, Continental Heat Treating reported that the PCE was stored in a tank provided by Acto Kleen Corporation and was disposed by Acto Kleen for recycling.

Hazardous Waste Code Violations

Continental Heat Treating has operated under an Industrial Waste Permit from the Los Angeles County Sanitation District and predecessor agencies since the 1970's. Permit # 4365 was issued on January 27, 1970 and Permit #4827 was issued on November 18, 1976. These permits did not include limits or sampling requirements for PCE.

Various inspections, violations, and complaints over the years were included in the file. These included:

- A Notice was issued on July 11, 1978 from the LA County Engineer ordering Continental Heat Treating to "clean the interceptor by July 18, 1978" and "maintain the interceptor in good operating condition at all times."
- An inspection report of April 5, 1982 noted under "Special Hazards and Conditions" that a degreaser was present in the northeast portion of the building.
- A complaint to the Fire Department was recorded on October 5, 1987 that blue-green water was being discharged to the street. This was attributed to the recent earthquake (October 4, 1987) which had broken several pieces of equipment at the site and that "a discharge similar to that of December 8, 1986 was occurring."
- A Notice of Violation (NOV) was issued on February 23, 1988 for discharging cooling tower blow down water to the street.
- The Santa Fe Springs Fire Department cited Continental Heat Treating on June 14, 1988 for failure to disclose certain materials on the 1987 plot plan.

Possible Explanations

Illegal and accidental discharges of chlorinated solvents to soil are typically not reported and are not discovered until a site characterization is performed. The data from the Levine/Fricke report

showing PCE in the soil, the use of large quantities of PCE on the adjoining site, the location of the PCE in soil relative to the degreaser and pipe trench on the Continental facility, and the complete absence of any use of chlorinated solvents of any kind by Mobil E & P, very strongly points to Continental Heat Treating as the source of the PCE on the Jalk Fee.

The following possible explanations are based on the information we were able to find and on past experience with similar situations. We cannot say which of these explanations is most likely or whether there is another possible explanation for the observed PCE.

Intentional or Unintentional Discharge. One possible explanation is that PCE from the degreaser or from the above ground storage tank was discharged to the ground by an employee or contractor working on site. This could have resulted from any number of activities such as overflow, spillage, a broken pipe, or an intentional discharge of waste PCE.

Fires. Three degreaser fires were reported in the Continental Heat Treating file at the Santa Fe Springs Fire Department:

- Degreaser Tank Fire (Code 6205) 87/10/02;
- Fire in Degreaser (Code 6225) 88/04/09;
- Fire in Degreaser (Code 6229) 88/08/01.

Earthquake. The file made reference to two earthquakes (December 8, 1986 and October 4, 1987) that resulted in broken equipment and discharge of chemicals. Although these references were made to the cooling tower blowdown water, it is also possible that the piping between the degreaser and the PCE storage tank were among the "several pieces of equipment" that were damaged at the same time.

I would be happy to discuss this matter with you at any time. Please call me at (714) 752-3211 if you have any questions or requests for additional information.

Sincerely,

Dennis Dineen

Dennis Dineen
Managing Principal Geoscientist
Assistant Regional Manager, Irvine

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